GIANT STATUES IN THE MAKING

ARTIST KARL BITTER IN HIS HOBOKEN STUDIO WORKING FOR THE ST. LOUIS EXHIBITION

KARL BITTER—FROM A PAINTING BY W.V. SCHMELL

THE WORKSHOP.

LIGHT
BY FINN HACKON FROLICH

THE ENLARGING APPARATUS

KARL BITTER AT WORK ON THE LOUISIANA PURCHASE MONUMENT

"ENLIGHTENMENT" FOR THE VARIED INDUSTRIES BUILDING BY B.L. ZINGG.

ANTHROPOLOGY FOR LIBERAL ARTS BUILDING. BY G.E. BISSELL.

"WHERE MEN ARE—PIGMIES."

PLASTER BOYS

Under the Palisades of the Hudson River, Colossal Decorations for the World's Fair Are Being Made—This Work Is Under the Direction of Karl Bitter, Chief of the Department of Scupture of the Louisiana Purchase Exposition — Sixty-Eight Men Are Employed and More Than 2,500 Barrels of Plaster of Paris Is Now Being Consumed.

WRITTEN FOR THE SUNDAY REPUBLIC.

Mention the World's Fair, the Pan-American Exposition, the Paris Exposition or the Charleston Exposition, and immediately, among all the wonders of civilization collected from the ends of the world, there comes to the memory of all who have attended any one of the fairs a picture of a fairyland composed of electric lights by night and dazzling white buildings flanked on all sides by colossal groups of sculptural art.

How are they made, these figures which, flanking the beautiful buildings and well-laid walks, made men feel like a race of Lilliputians with a hundred Gullivers in their midst?

Under the Palisades below Union Hill, in Hoboken, they are making the colossal decorations for the St. Louis World's Fair.

The work is under the direction of Karl Bitter, the man who had charge of the department of sculpture of the Pan-American Exposition, and who is now the chief of the Department of Sculpture of the Louisiana Purchase Exposition.

The workshop is an old roundhouse belonging to the Erie Railroad.

In this building, which is admirably adapted to the purpose, because of the girders in the roof for hoisting the giant figures and the tracks which enter the building for the transportation of the finished product to St. Louis, almost all of the statues will be made.

Roughly estimated, there will be about 350 groups, including fountains, monuments and single figures.

Work started last February and the contract calls for the statues to be finished and on the Fair grounds about one year from now.

More than 2,500 barrels of plaster of paris will be consumed in the construction of them, and sixty-eight men are employed—carpenters, pointers and plaster boys, not to mention some fifteen sculptors in and about New York City who have been deputized to model certain features.

HOW THE STATUES ARE MADE.

The question is, How are the statues made? On account of their size it is difficult to imagine an artist capable of modeling a figure of such giant proportions with any accuracy.

They are too big for the eye to take in except at a great distance, and, in truth, no sculptor attempts to work an original on anything like the generous scale of the final figure.

The first thing they do after the "inspiration and conception" of the idea the statue is intended to convey is to make a small model in green clay.

It may vary in size from two to three feet high. When it is finished a plaster of paris replica is made of it and sent from the studio of the sculptor to the roundhouse under the hill on the other side of the Hudson.

Then it comes under the charge of Gustav A. Gerlach, the superintendent of the building.

He is a veteran in his line of work, having occupied the same position under Karl Bitter for the Pan-American Exposition.

In the shop where the statues are made the little model is cut in two or three pieces.

If the enlargement is going to be great it is cut into three pieces; if small, the whole model is used direct.

The actual enlargement is done mechanically by a device called a "opintograph," or "ponograph," named from two points from which the men work.

The machine consists primarily of two vertical posts set about twelve feet apart. They have a cogwheel at the top connected by a roller chain, like a bicycle chain.

They rest on the floor on a pivot, so that when you turn one post the other turns also. The model, or that section of it which is to be enlarged, is securely fastened to one of these posts midway between the ceiling and the floor.

The enlarged statue is to appear against the other post.

Suspended from the roof, midway between the two posts, is a horizontal bar. At both ends of this bar, protruding at right angles to a distance of a foot and a half, are two other bars, ending in sharp points like needles.

By a system of weights and balances this bar is so worked that when the needle point is placed against the model attached to one post the other needle point at the far end of the bar will register on the enlargement a similar spot.

The device works on the same principle as the pantograph used by artists in enlarging drawings, and was invented and adopted for enlarging models by Robert T. Paine, one of Mr. Bitter's assistants.

Mr. Bitter is loud in his praise of it, saying: "It secures for us exactness and speed in reproduction that would otherwise be difficult, if not impossible, to obtain."

TWO PARTS ALWAYS FIT WHEN REASSEMBLED.

There is no doubt about its exactness, for so well does it work that when the first half of the enlarged figure is finished and set to one side, and the second half also completed in its turn, and the two parts are reassembled, it is found that they invariably fit to perfection.

So that when the top coat of plaster of paris is placed over the joint no one would ever be able to detect the fact that the figure had been made in two parts.

But to revert to the pointing machine. When the needles have been adjusted until they point to the right places the carpenter is called in. He usually starts at the base and builds up.

The man at the model end of the machine points to the lowest part of the pedestal; the needle on the other end shows where it should begin, and the carpenter lays down his board at that spot.

Then he goes to the other end of his board and the man with the pointing machine moves his needle over to the other end of the pedestal and the carpenter knows just where to saw his board.

If the model is that of a figure sitting in a chair on top of a pyre of steps the carpenter builds up his steps and fashions wooden upright supports for the chair, being careful to pin the whole fabric of woodwork together by means of a long 2x2 piece of lumber running vertically through the center of the figure and coming out of the top of the head for a distance of a foot or so.

In this upright piece of lumber he bores a large hole, so that a rope or chain can be passed through it when the figure is completed and needs must be lifted into the car.

When it is finally placed in position on the fair grounds this timber is removed with a saw, so that nothing of the woodwork is seen; but if one could get up above the fair grounds and look down upon all the statues with a strong field glass one could see the end of this wood embedded in the head of each statue.

As all the figures are placed so high up that little detail going to show how they are made escapes observation.

And then, again, if by any chance any of the casts are so situated as to be seen from the top, the blemish is easily covered over with a little plaster of paris.

But right here, at the very beginning of the process, that beam is put into place. After the carpenter has done his work and the frame is finished, the "burlap, wire and excelsior" man appears upon the scene, for these giant figures are built up from the inside just like a rag doll or a baseball.

LEGS WRAPPED WITH EXCELSIOR AND BURLAP.

Truly, like human beings, they are "fearfully and wonderfully made."

The "burlap man" wraps the sticks the carpenter meant for the legs and arms of the figure with a mixture of excelsior, plaster of paris and burlap until they take a sort of resemblance to their final form, and all the time he is working the "pointing man" is busy with the needle, indicating the spots to see that the growing figure remains an inch or so under the final size.

When this operation is finished and hardens, the finishing touch is given, and this consists of a hammer and nails.

The "pointing man" puts the needle against the chin, forehead, eye, back hair, arms, waist, legs, etc., of this little model, and each time the man with the hammer drives a wire nail half way into the figure.

As his fellow at the other end brings his needle to a point of rest against the model he at the other needle finds that there is a distance of an inch or so between the excelsior burlap figure and his needle, and so he proceeds to fill up the distance by driving a nail just deep enough for the needle in passing barely to touch the top of it.

When they get through with the enlargement it looks as though it might be intended for the big white ghost of a short-haired porcupine.

But the nails have their purpose; they show the man who finally covers the outside with its coating of plaster of paris how thickly he must lay on the white stuff. The nails being driven, and the result of the work having been examined and verified by the superintendent, the half-finished enlargement is taken down and placed upon a sculptor's table.

Some of the sculptors do their own work upon the enlargements, but usually an assistant is intrusted with it.

If, however, the figure is an important one and to be used from which to cast ten or twenty other heroic figures, the sculptor of the model does his own work, only he works in cement instead of plaster of paris.

But whether the assistant or the sculptor himself does the work, the process is the same.

The enlargement is wheeled to that part of the building where there is the best light, and the sculptor sets up a cry for "plaster" at the top of his lungs.

ITALIAN BOY COVERED WITH WHITE PLASTER.

Presently, with all the hesitation of a messenger boy, there appears from somewhere in the heart of the building a picturesque Italian boy, covered with a slight coating of white plaster from head to foot. In his hands he is bearing a tin dish full of the stuff.

It is swimming with water, and he carries it for all the world as though it might be soup, but he leaves a trail of white to mark the way he came.

There are five or six of these boys kept continually busy answering the cry for plaster which comes from the throats of fifteen sculptors at work at one time on as many different pieces of statues towering above them.

Having secured his plaster, the sculptor goes to work upon his figure, laying it on so as to cover the nails.

The figure before him is a sorry sight, to be sure. It has no face or fingers or modeling at all and looks very little like the trim little model.

But the coating of plaster changes all that very soon. Referring to the model, the sculptor works patiently on.

He reverses the carpenter's process and begins at the top. The face and arms seem to be the next interesting parts to him and he completes them first.

He models away from morning until night, building up the edge of the drapery, hacking away at the burlap and the excelsior, when the men have been careless or when he wishes to change the original sketch for a new bit of modeling which he believes will improve the model, and presently the thing is completed.

It takes about three weeks or a month to make a figure—that is, to make the model and the enlargement.

The enlargement, it seems, with the facilities they have at hand is a simple matter. It alone can be done in a week, while it sometimes takes the sculptor two or three weeks to make the original model.

He usually makes a number of what he calls "sketches," and submits them to Karl Bitter, who decides which translation of the original conception is best. The one selected is then worked up to a finished stage and sent to the "shop" to be used for enlargement.

ASSISTED BY YOUNG SCULPTORS OF THE UNITED STATES.

Mr. Bitter has called to his assistance the younger sculptors of the United States.

Some of them have already made their mark and others will be better known when their work is seen at the Louisiana Purchase Exposition.

Karl Bitter, chief of the Department of Sculptor, is an Austrian by birth, but an American by adoption and instinct.

He studied his profession in the art schools of Vienna and was graduated from the Academy of Fine Arts.

He came to America in 1889, at the age of 20, and in fourteen years has risen to the front rank in sculpture.

His works are distributed over a good part of the United States, several important objects being in New York, Philadelphia, Pittsburg and Boston.

THE MASTER OF APPLEBY: BY FRANCIS LYNDE.

SYNOPSIS OF PRECEDING CHAPTERS.

Roger Ireton was executed in 1781 by Governor Tyron for his participation in the Regulators' insurrection, and his Carolina estate, Appleby Hundred, bestowed upon one Gilbert Stair. His son, John Ireton, having till then served the King in a regiment in England, threw up his commission and took service with the Austrians. In 1779 he returned to the New World to see if, in the troublous days of revolution, he could not regain his ancestral estate.

Almost the first man he meets is Sir Francis Falconnet, an old enemy of his English Army days, now a Captain of Hessians. The two fight a duel, in which Sir Francis wounds Ireton, taking an unfair advantage of the intervention of Margery Stair, the daughter of the usurper of Appleby, whither Ireton is taken by her orders. She nurses him, and he falls in love with her, honor bidding him to respect what he believes to be the prior claim of a young American, Dick Jennifer. She also tells him that Sir Francis Falconnet has asked her to marry him, a marriage that he purposes to prevent.

Ere long he discovers that he is in reality the prisoner of the Baronet, who intends to denounce him to Tarleton as a Continental spy. He also learns that a powder convoy is to be sent out to arm the Indians for raids upon the patriots. While trying to escape with the map of the route of this convoy, he is captured. Tarleton condemns him to death, and during the night before his execution Margery visits him. She endeavors to carry the map to Jennifer, but is taken. Tarleton taunts her with being the mistress of Ireton, who boldly declares that she is his wife. Gilbert Stair, knowing that he is about to die, demands a secret marriage, as this will secure Appleby for his daughter independent of his confiscator's claim.

Ireton is led out to execution, but saved at the last moment by a band of patriots. Uncanoola, his Indian playmate of boyhood days, informs him that Jennifer, too, has escaped. Ireton chances to find Jennifer surrounded by enemies. He rescues Jennifer and the two engage in a series of adventures.

They return to Appleby Hundred, where new perils await them.

Margery Stair is taken prisoner by the Indians and John Ireton sets out to find her.

Chapter XX—Continued.

"And yit that ain't all. Whilst some o' the injuns was a-whooping it up acrost the creek, a-chasing the folks that was making tracks for their city o' refuge, t'others run the two gals off into the big woods at the side o' the road. Then Mister Hoss-Captain picks up the Afrikin, chucks him on a hoss and sends him a-kiting with his flea in his ear; after which he climbs his hoss and makes tracks hisself—not to ketch up with the gals, ez you mought reckon, but off yon way," pointing across the creek and down the road to the southward.

Jennifer heard him through, had him set it all out again in plainest fashion, and after all could only say: "You are sure you have the straight of it, Eph?"

The borderer appealed to Uncanoola. "Come, Chief; give us the wo'th of your jedgment. Has the old Gray Wolf gone stun blind? or did he read them sign like they'd ort to be read?"

"Wah! the Gray Wolf has sharp eye—sharp nose—sharp tongue, sometimes. Sign can no lie when he read 'um."

Jennifer turned to me. "What say you, Jack? 'Tis all far enough beyond me, I'll confess."

I was as much at sea touching the mystery as he was; yet the thing to do seemed plain enough.

Never mind the Baronet's mystery; 'tis Mistress Margery's hazard that concerns us." I would say. And then to Ephraim Yeates: "Will this rain kill the trail, think you?"

He shook his head dubiously. "I dunno for sartain; 'twill make a heap o' differ' if they was anyways anxious to hide it. Ez it starts out, with the women a-hossback, 'tis plain enough for a blind man to lift on the run."

"Then let us be at it," said I. "We can very well afford to let the mystery untangle itself as we go." And with this the pursuit began in relentless earnest.

The trail of the two horses ridden by Margery and her woman cut a right angle with the road, turning northwest along the left bank of the stream; and, despite the rain, which was now pouring steadily even in the thick wood, the hoof-prints were so plainly marked that we could follow at a smart dog trot.

In this speeding the old hunter and the Indian easily outwearied Jennifer and me. They both ran with a slow, swinging leap, like the racking gait, half pace, half gallop, of a well-trained troop horse. Mile after mile they put behind them in these swinging bounds; and when, well on in the afternoon, we stopped to eat a snack of the cold meat and to slake our thirst at one of the many pools, I was fain to follow Jennifer's lead, throwing myself flat on the soaking mold to pant and gasp and pay off the arrears of breathlessness.

This breathing halt was of the briefest, but before the race began again, Ephraim Yeates took time to make a careful scrutiny of the train, measuring the stride of the horses, and looking sharply on the briars for some bit of cloth or other token of assurance. When we came up with him he was mumbling to himself:

"Um-hm; jes' so. They was a-making tracks along hereaway; sartain, sure; larruping them hosses to a keen jump, lickity-split. Now, says I to myself, what's the tarnation hurry? Ain't they got all the time there is to get where they're a-going immejitly, if not sooner?" Then he turned upon me. "Cap'n John, can't you and the youngster lay your heads side and side and make out what all this here hoss-Captain mought be up to? It do look like he had some sort o' hatchet to grind, a-sending that Afrikin back to raise a hue and cry, and then a-letting his Injuns leave a trail like this here that any tow-head boy from the settlements could follow at a canter."

Richard said he could never guess the meaning of it all; and my mind was to be fully as blank as his, I made sure some deep-laid plot was at the bottom of the mystery; but we had measured many weary miles in the wilderness, and the plotter's trap had been fairly baited, set and sprung, before the lightning flash of explanation came to show us all its devilish ingenuity.

But now "Forward" was the word, and we fell in line again, and again the tireless running of the two guides stretched and held us on the rack of weariness. Happily for us two who were out of training, the rainy-day dusk came early; and though Yeates and the Indian, running now with their bodies bent double and their noses to the ground, held on long after Richard Jennifer and I were bathblind for any seeing of the hoof-prints, the end came at length and we bivouacked as we were, fireless, and with the last of the cooked ration of deer's meat for a scanty supper.

After the meal, which was swallowed hastily in the silence of utter fatigue, we scooped a hollow in a last year's leaf bed and lay down to sleep, wet to the skin as any four half-drowned water rats, and to the full as miserable.

Fagged as I was, 'twas a long time before sleep came to make me forget; a weary interval fraught with dismal mental miseries to march step and step with the treadmill rackings of the aching muscles. What grievous hap had befallen my dear lady? and how much or how little was I to blame for this kidnaping of her by my relentless enemy? Was it a sharp foreboding of some such sort to savage violence that had tortured her into sending the appeal for help?

With this, I fell to dwelling afresh upon the wording of her message, hungering avidly for some hint to give me leave to claim it for my own. Though I made sure she did not love me, had never loved me as other than a make-shift confidant, whose face and age would set him far beyond the pale of sentiment, yet I had hoped that this friendship-love would give her leave to call upon me in her hour of need.

Was I the one to whom her message had been sped? Suddenly I remembered what Richard had said: that the arrow was the Catawba's. If Uncanoola were the bearer of the parchment, he would surely know to whom he had sent.

His burrow in the leaf bed chanced to be next to mine, and I could hear his steady breathing, light and long-drawn, like that of some wild creature—as, truly, he was—sleeping with all the senses alert to spring awake at a touch or the snapping of a twig. A word would arouse him, and a single question might resolve the doubt.

I thought of all this, and yet, when I would have wakened the Indian, a shaking ague-fit of poltroon cowardice gave me pause. For while the doubt remained there was a chance to hope that she had sent to me, making the little cry for help a token, not of love, perchance, but of some dawning of forgiveness for my desperate wronging of her. And in that hesitant moment it was borne in upon me that without this slender chance for hope I should go mad and become a wretched witling at a time when every faculty should be superhuman sharp and strong for spending in her service.

So I forebore to wake the Indian; and following out this thought of service fitness, would force myself to go to sleep and so to gather fresh strength for the new day's measure.

CHAPTER XXI.

How We Kept Lenten Vigils in Trinitytide.

'Twould weary you beyond the limit of good-nature were I to try to picture out at large the varied haps and hazards of our wanderings in the savage wilderness. For the actors in any play the trivial details have their place and meaning momentous enough, it may be; yet these are often wearisome to the box or stall yawning impatiently for the climax.

So, if you please, you are to conceive us four, the strangest ill-assorted company on the footstool, pushing on from day to day deeper and ever deeper into the pathless forest solitudes, yet always with the plain-marked trail to guide us.

At times the march measured a full day's length amid the columned aisles of the forest temple through lush green glades dank and steaming in the August heat, or over hillsides slippery with the fallen leaves of the pine-trees. Anon it traced the crooked windings of some brawling mountain stream through thicket tangles where, you would think, no woman-ridden horse could penetrate.

One day the sun would shine resplendent and all the columned distances would fill with soft suffusings of the gray and green and gold, with here and there a dusky flame where the sweet-gum heralded the autumn, whilst overhead the leafy arches were fine-lined traceries and arabesques against the blue. But in the night, mayhap, a dismal rain would come, chill with the breath of the nearing mountains; and then the trees turned into dripping sprinkling-pots to drench us where we lay, sodden already with the heaviness of exhaustion.

Since the hasting pursuit was a thing to tap the very fountain-head of fortitude and endurance, we fared on silent for the better part; and in a little time the hush of the solitudes laid fast hold of us, scanting us of speech and bidding us go softly. And after this the march became a soundless shadow-flitting, and we a straggling file of voiceless mechanisms wound up and set to measure off the miles till famine or exhaustion should thrust a finger in among the wheels and bid them stop forever.

This was the loom on which we wove the backward-reaching web of strenuous onpressing. But through that web the scarlet thread of famine shuttled in and out, and hunger came and marched with us till all the days and nights were filled with cravings, and we recked little of fair skies or dripping clouds, or aught besides save this ever-present specter of starvation.

You will not thing it strange that I should have but dim and misty memories of this fainting time. Of all privations famine soonest blunts the senses, making a man oblivious of all save that which drives him onward. The happenings that I remember clearest are those which turned upon some temporary bridging of the hunger gulf. One was Yeates's killing of a milk doe which, with her fawn, ran across our path when we had fasted two whole days. By this, a capital crime in any hunter's code, you may guess how cruelly we were nipped in the hunger vise. Also, I remember this: as if to mock us all the glades and openings on the hillsides were thicketed with berry bushes, long past bearing. And, being too late for these, we were as much too early for the nuts of the hickory and chestnut and black walnut that pelted us in passing.

The doe's meat, coming at a time of sharpest need, set us two days farther on the march; and when that was spent or spoiled we did as we could, being never comfortably filled, I think, and oftener haggard and enfeebled for the want of food. Since we dared not stop to go aside for game, the Catawba would set over-night snares for rabbits; and for another shift we cut knobbed sticks for throwing and ran keen-eyed along the trace, alert to murder anything alive and fit to eat. In this hap-hazard hunting nothing ever fell to Jennifer's skilless clubbing, or to mine; but the old borderer and the Indian were better marksmen, and now and then some bird or squirrel or rabbit sitting on its form came to the pot, though never enough of all or any to more than sharpen the famine edge of hunger.

For all the sharp privations of the forced march there was no hint on any lip of turning back. With Margery's desperate need to keep us to the unflinching pitch Richard and I would go on while there was strength to set one foot before the other. But for the old borderer and the Indian there was no such bellows to blow the fire of perseverance. None the less, these two did more than second us; they set the strenuous pace and held us to it; the Catawba Spartan-proud and uncomplaining; the old hunter no whit less tireless and enduring. At this far-distant day I can close my eyes and see the gaunt, leather-clad figure of Ephraim Yeates, striding on always in the lead and ever pressing forward, tough, wiry and iron to endure, and yet withal so elastic that the shrewdest discouragement served only to make him rebound and strike the harder. Good stuff and true there was in that old man; and had Richard or I been less determined, his fine and noble heroism in a cause which was not his own would have shamed us into following where he led.

We had been ten days in this starving wilderness, driving onward at the pace that kills and making the most of every hour of daylight, before Yeates and the Indian began to give us hope that we were finally closing in upon our quarry.

The dragging length of the chase grew upon two conditions. From the beginning the kidnapers were able to increase their lead by stretching out the days and borrowing from the nights; also, they were doubtless well provisioned, and they had horses for the captives and their impedimenta. But as for us, we could follow only while the daylight let us see the trail; and, though we ran well at first, the lack of proper food soon took toll of speed.

TO BE CONTINUED.